28/4/52

Dear Lederberg,

Hayes writes me it would be best if the sending of both his and our paper to JGM were delayed until June. I have nothing against it, on the contrary ; because in such a case I might undertake myself the trouble of writing this second paper. This of course unless you have already started writing it yourself. Unfortunately my English is rather raw - less raw/than however it would appear from my letters, especially if they are written in a hurry. I can probably get someone, however, to correct it in order not to leave this job entirely to you.

One more point about the cultures you sent me : I have a recollection of a lapsus calami in my last letter. Did I write you in a P?S. that your cultures were all right ? They arrived safely, but all of them were unfortunately sterile. If you undertake another sending, could you add 679, which was accidentally discarded.

I had promised a summary of Hfr work. In ~~June~~ May, 1949 two mutants (B_1 less and arginineless) were prepared from Hfr and crossed together on BM minimal +BM . One recombinant out of 10^4 cells was the yield consistently obtained in three expts. Hfr activity of both BMB_1- and BMAr- was checked against w 583. Back mutation rates of the two strains on BM minimal 10^{-6} and 10^{-7} resp. Also : BMB_1-Hfr x W 583 on minimal BM, 10 colonies which were M- were isolated. Of these, 8 were crossed to W 583 on minimal and none gave a recomb. rate higher than 58-161 control. Later (Nov. 1949) nicotinicless and histidineless mutants were isolated from W 1073 (HfrLac-Mal-). Yields of the 6 Hfr x Hfr crosses with these and the above two strains were again 10^{-4} only for BMB_1- x BMAr- on minimal BM, and 10^{-5} for BMB_1- x W 1073 H-. All other crosses less than 10^{-5}. Mutation rates lower than this figure .

W 1073 H^{-}_{Hfr} crossed to BMB_1- Hfr on minimal BM . 5 Lac-Mal+ recombinants and 5 Lac+Mal- recombinants crossed on minimal to W 677; all had a recomb. rate well below that of an Hfr control.

All of the Hfr derivatives now in my hand have lost their Hfr power, except the original strain which has been reselected regularly. I have therefore to make new mutants to check this unexpected Hfr x Hfr cross resulting in Nfr progeny. At the time these experiments were made instability of Hfr had only been suspected and all the relevant controls had not been set up. However I trust they can be reproduced, or at least hope so.

Another point of some interest was that the segregation ratios were unaltered, whether the more abundant parent was Hfr or Nfr. I am trying to reproduce these results now, to see whether this "interference" between "gametes" can be confirmed in a variety of combinantions, or whether more than one gamete can fertilise the same opposite "gamete".

The Lac+S^r selection undoubtedly gives extraordinary results in the Hfr x Nfr cross. I wonder if you have made any progress with it. I had to stop work almost completely in the past month and am at the moment proceeding at reduced rate. I have confirmed, however, that attenuated Hfr does transduce F+ . UV-irradiated Hfr does not transduce F+. Would you be kind enou